

IN THE CLAIMS:

Please **AMEND** the claims as follows:

1. (Currently Amended) A method for manufacturing a semiconductor device, comprising the steps

of:

forming a wiring comprising silicon on a surface of a semiconductor substrate;

covering part of the wiring with a resist pattern;

implanting arsenic ions into the wiring using the resist pattern as a mask;

removing the resist pattern;

thinning the wiring by removing a surface layer of the wiring to a depth of at least 5 nm; and

forming a refractory metal film and a TiN film on an entire surface of the silicon surface; and

thermally treating in a nitrogen gas atmosphere so as to form forming a metal silicide film on a

surface of the wiring by causing reaction between a surface layer of the thinned wiring and a refractory

metal which reacts with silicon to form silicide,

wherein the wiring thinning step comprises the steps of:

oxidizing the wiring, using a rapid thermal processing, beginning on an upper surface thereof
down to a predetermined depth; and

removing an oxidized section of the wiring oxidized in the oxidizing step.

2. (Original) A method for manufacturing a semiconductor device according to claim 1, wherein the metal silicide forming step comprises the steps of:

depositing a metallic film comprising a refractory metal which reacts with silicon to form silicide, on a surface of the wiring; and

forming a metal silicide layer on an interface between the wiring and the metallic film by causing reaction therebetween.

*control
C1*

3. (Previously Canceled)

4. (Original) A method for manufacturing a semiconductor device according to claim 1, wherein the metal is cobalt.

5. (Currently Amended) A method for manufacturing a semiconductor device, comprising the steps of:

forming wiring comprising silicon on a surface of a semiconductor substrate;

covering part of the wiring with a resist pattern;

implanting arsenic ions into the wiring using the resist pattern as a mask;

removing the resist pattern;

oxidizing the wiring, using a rapid thermal processing, beginning on an upper surface thereof down to a predetermined depth;

removing an oxidized section of the wiring oxidized in the oxidizing step and thereby thinning the wiring; and

forming a refractory metal film and a TiN film on an entire surface of the silicon surface; and
thermally treating in a nitrogen gas atmosphere so as to form forming a metal silicide film on a
surface of the wiring by causing reaction between a surface section of the thinned wiring and a refractory metal which reacts with silicon to form silicide.

cont'd

6. (Original) A method for manufacturing a semiconductor device according to claim 5, wherein the metal silicide forming step comprises the steps of:

C1
depositing a metallic film comprising a refractory metal which reacts with silicon to form silicide, on a surface of the wiring; and
forming a metal silicide layer on an interface between the wiring and the metallic film by causing reaction therebetween.

7. (Original) A method for manufacturing a semiconductor device according to claim 5, wherein the oxidation depth to oxidize the wiring is at least 5 nm, the oxidation depth being less than a thickness of the wiring.

8. (Original) A method for manufacturing a semiconductor device according to claim 5, wherein the refractory metal is cobalt.

9. (Previously Added) A method of manufacturing a semiconductor device according to claim 1, wherein in the step of oxidizing the wiring, the oxidation is conducted in an atmosphere including an oxygen gas and a hydrogen gas.

10. (New) A method for manufacturing a semiconductor device, comprising the steps of:

forming a wiring comprising silicon on a surface of a semiconductor substrate;

covering part of the wiring with a resist pattern;

implanting ions into the wiring using the resist pattern as a mask;

removing the resist pattern;

thinning the wiring by removing a surface layer of the wiring to a depth of at least 5 nm; and

forming a metal silicide film on a surface of the wiring by causing reaction between a surface layer of the thinned wiring and a refractory metal which reacts with silicon to form silicide,

wherein the wiring thinning step comprises the steps of:

oxidizing the wiring for at most 20 seconds, using a rapid thermal processing in an atmosphere including an oxygen gas and a hydrogen gas, beginning on an upper surface thereof down to a predetermined depth; and

removing an oxidized section of the wiring oxidized in the oxidizing step.